Publishing on the Internet

Instructor: John Duhring, WAIS, Inc.

Wednesday, September 14, 1994
9:00 am–1:00 pm

SEYBOLD SAN FRANCISCO

Conference & Exposition

MOSCONE CENTER • SAN FRANCISCO • SEPTEMBER 13–16, 1994

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Producing Internet Services
using World Wide Web (WWW) and WAIS

Wide Area Information Servers, Inc
Fall, 1994

Who should be here

- Technical people with WWW or WAIS experience
  - Expand your capabilities to deliver commercial grade services
- Managers who have been asked to develop online services
  - Understand the opportunity to use industry standard publishing tools over the Internet and other networks

What you will learn today

- What it takes to be a commercial service on the Internet
- What online services today define the standard
- Options for producing services: in-house or outsourced
- The architectural and systems information you need to organize yourself for network publishing

What will NOT be covered

- Discussion of protocols, underlying standards or C code
- Detailed analysis of html
- Programmatical interfaces
- Process management methods
- Information on network service providers or options for network access

Who is a publisher?

- Someone with something to say
  - Distributing materials to subscribers who pay for them
  - Presenting materials to purchasers of something else
  - Producing promotional and informational services to support other activities
  - Sharing information within organizations
- Little or no control over users

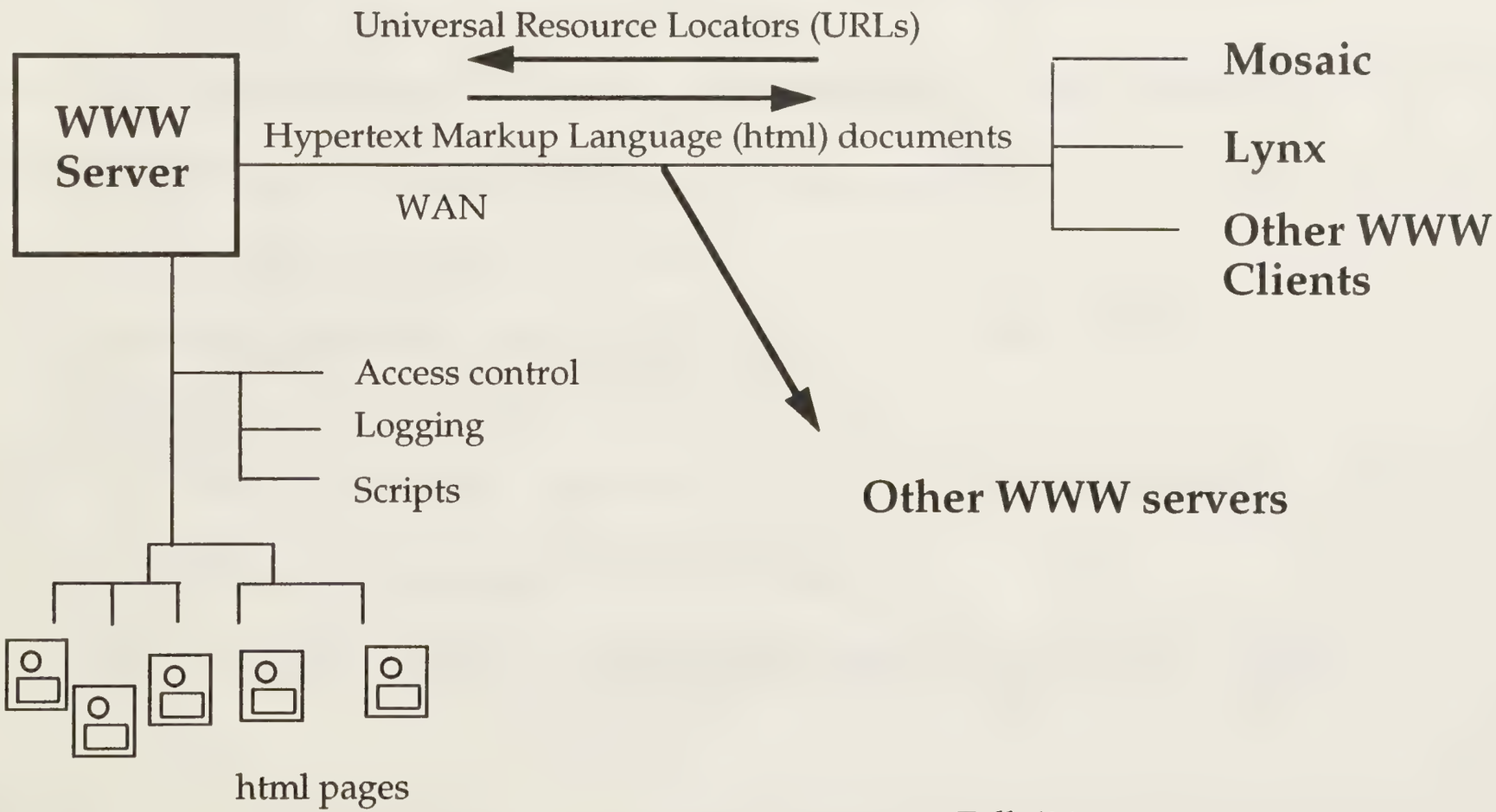
What makes network publishing different from "Workgroups"

- Designed for global networks
- Material tends to change regularly, in an organized way
- Publishers want control over access and distribution of their material
- Publishers want access to multiple markets
- Publishers create economies
  - Services must cost justify themselves

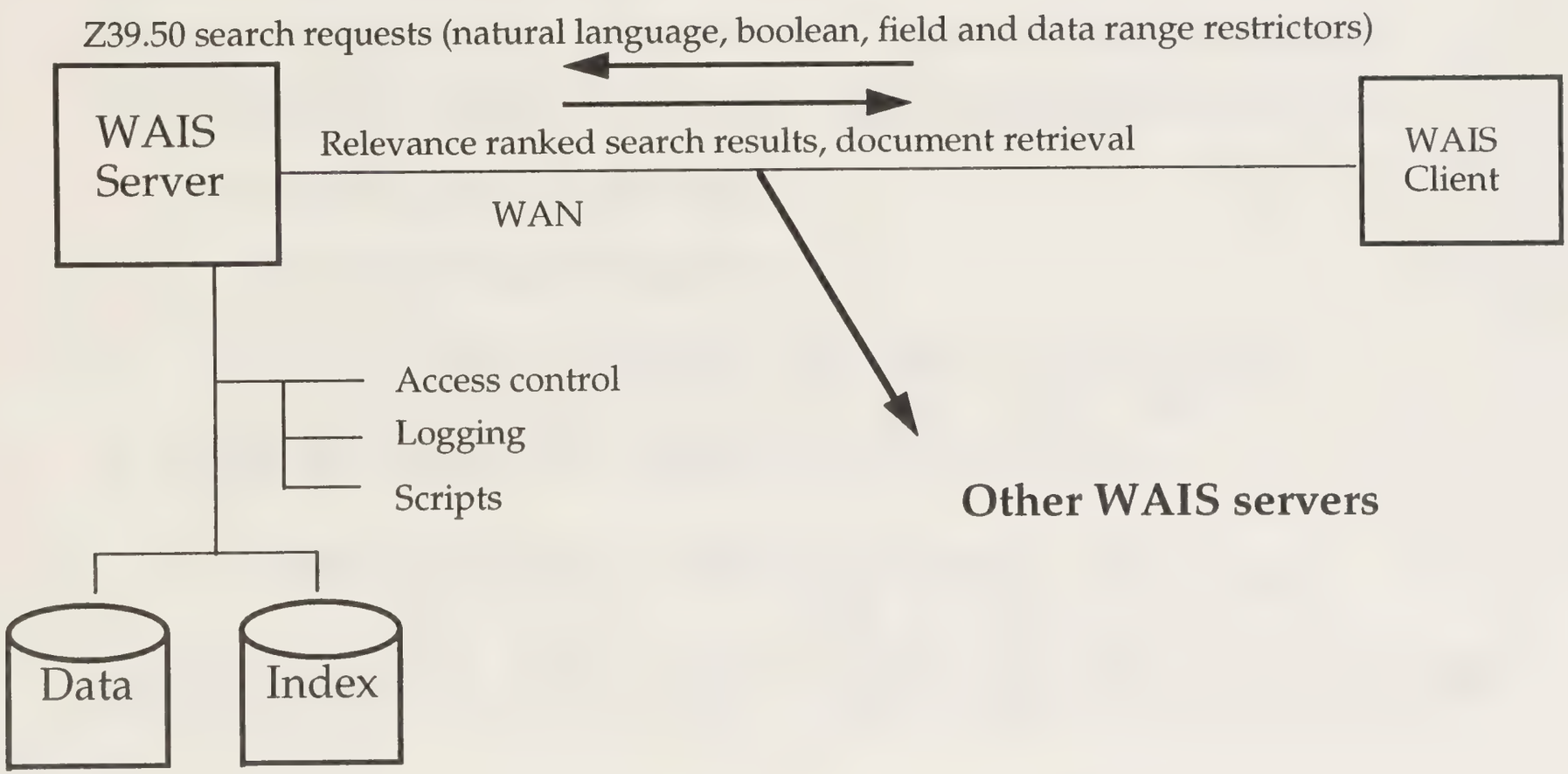
What's the "killer app" for the Internet?

- Mosaic?
- World-Wide Web? WAIS?
- Something totally new?
- Network publishing?
  - Like word processing: valuable in many situations and contexts
  - Trustworthy information services expand business opportunities for others
  - Value grows with diversity of services

World-wide hypertext



World-wide search and retrieval



Network publishing is more than a "Web" or WAIS server

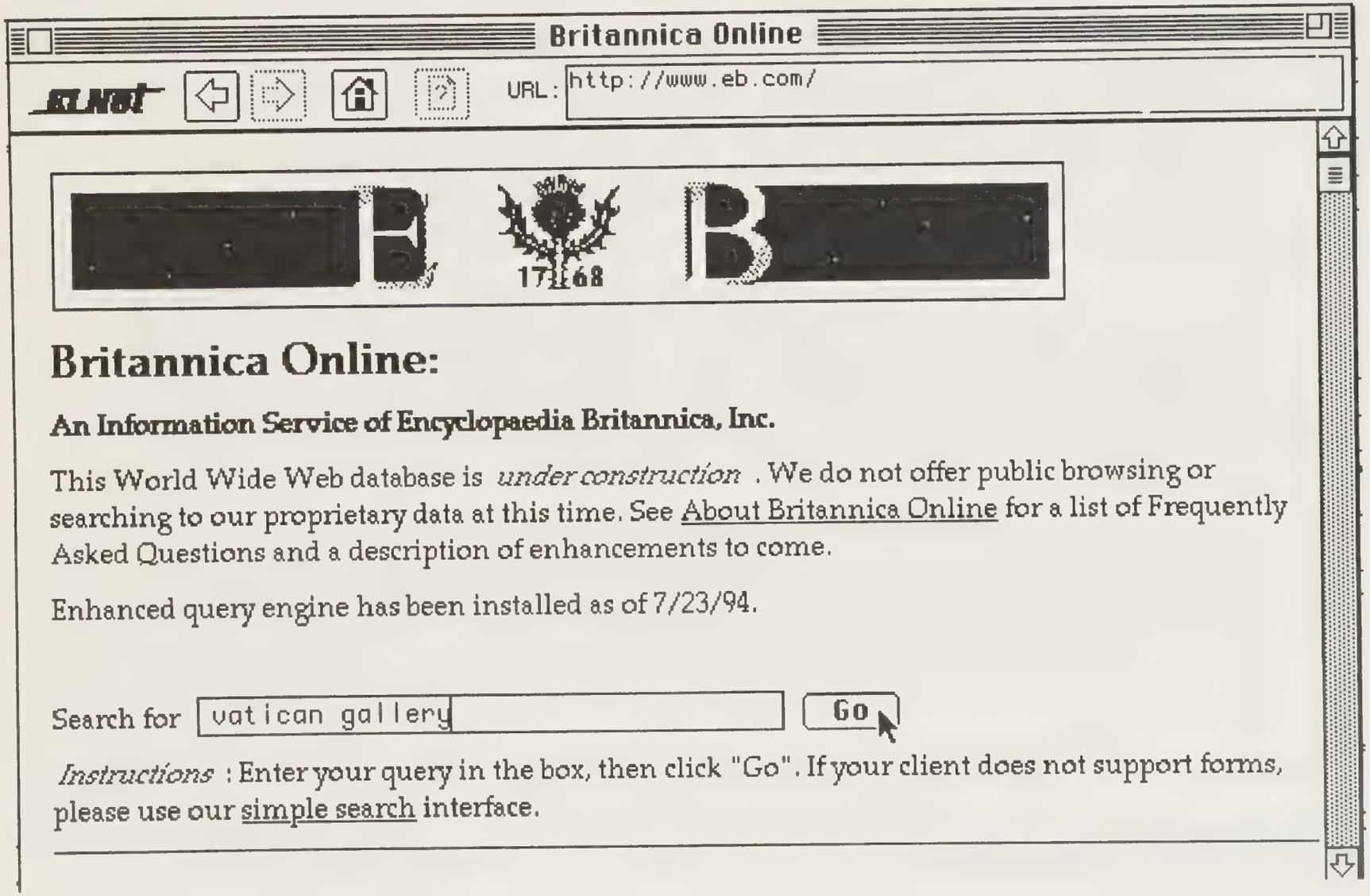
- Cost of creating html pages is high
  - When information changes regularly
  - When links change
- Users graduate quickly
  - Want search services, timely information with links, etc. to keep them coming back
- Mosaic is only one market
  - about 500,000 regular web users (June 94)

The "Information Interface"

- Concise, hypertext-linked documents
  - With graphics
    - » Thumbnails to get the idea
    - » Preview a 72 dpi sample
    - » Hi resolution files available for download
- Comprehensive search and retrieval
  - Full-text with fielded values
    - » Search within category improves precision
  - Retrieve hypertext documents

Network publishing using WWW and WAIS

- Pre- and post-sales information
  - Novell, cisco, WAIS Inc., NCSA
- Subscription services
  - Encyclopaedia Britannica, Dow Jones
- Catalogs and Directories
  - Scholastic, Inc., WestLAW
- In-house services
  - Netnews, email archives


Britannica Online
NCSA Mosaic
URL:
http://www.eb.com/
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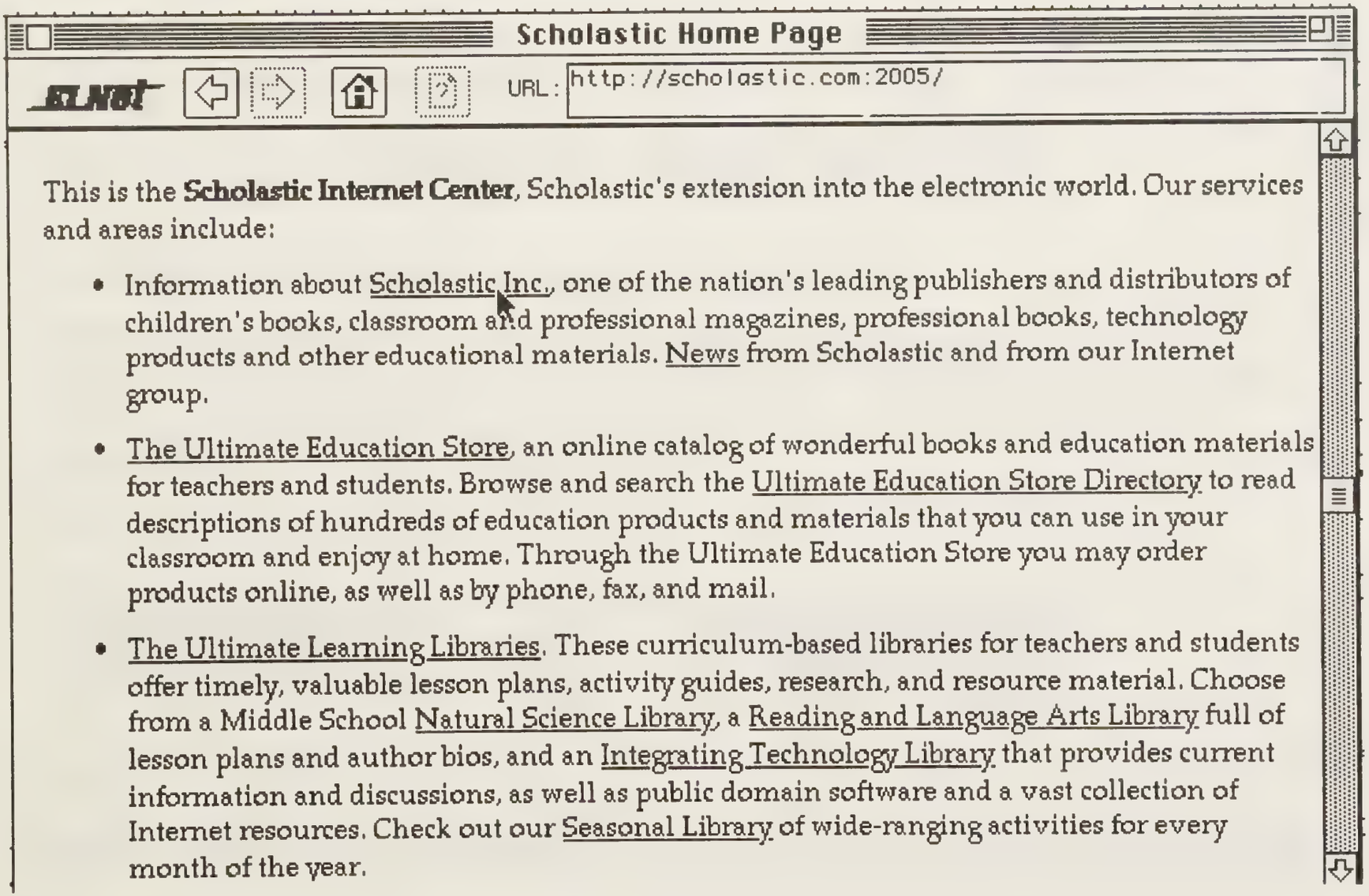
Britannica Online:
An Information Service of Encyclopaedia Britannica, Inc.
This World Wide Web database is under construction . We do not offer public browsing or searching to our proprietary data at this time. See About Britannica Online for a list of Frequently Asked Questions and a description of enhancements to come.
Enhanced query engine has been installed as of 7/23/94.
Search for
vatican gallery
Go
Instructions : Enter your query in the box, then click "Go". If your client does not support forms, please use our simple search interface.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• The Ultimate Education Store, an online catalog of wonderful books and education materials for teachers and students. Browse and search the Ultimate Education Store Directory to read descriptions of hundreds of education products and materials that you can use in your classroom and enjoy at home. Through the Ultimate Education Store you may order products online, as well as by phone, fax, and mail.
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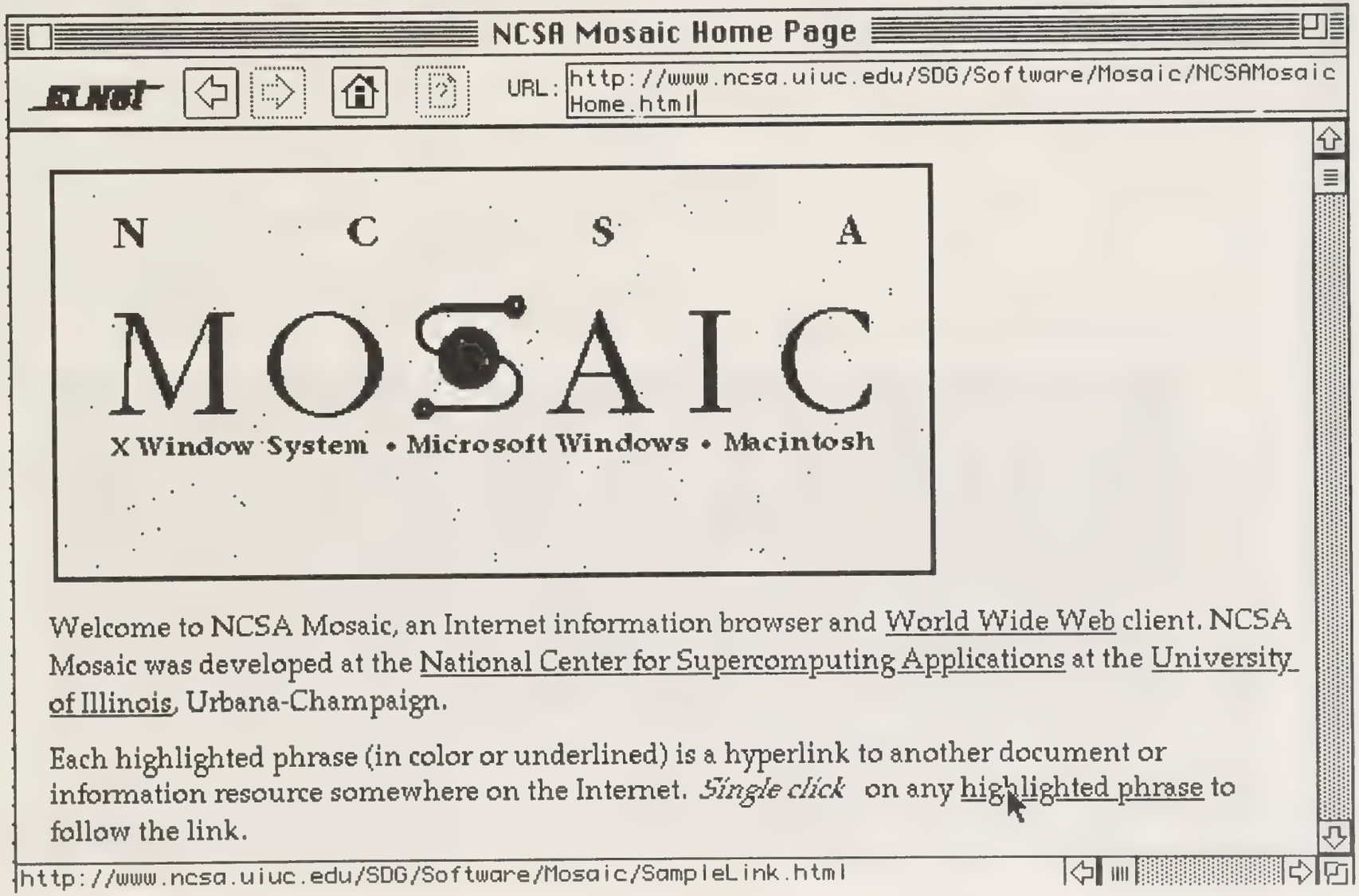
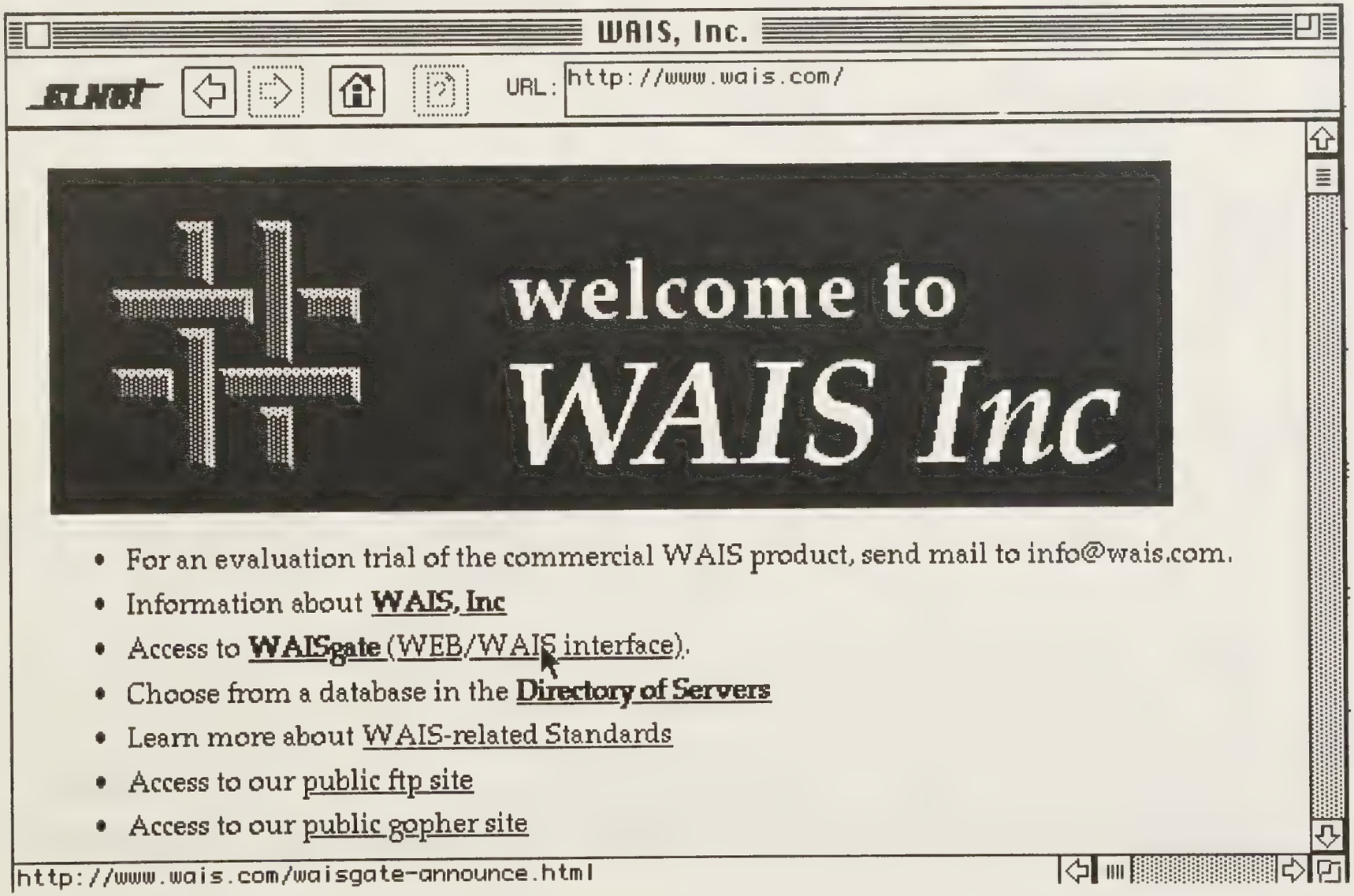

NCSA Mosaic Home Page
URL: http://www.ncsa.uiuc.edu/SDG/Software/Mosaic/NCSAMosaicHome.html
N C S A
MOSAIC
X Window System • Microsoft Windows • Macintosh
Welcome to NCSA Mosaic, an Internet information browser and World Wide Web client. NCSA Mosaic was developed at the National Center for Supercomputing Applications at the University of Illinois, Urbana-Champaign.
Each highlighted phrase (in color or underlined) is a hyperlink to another document or information resource somewhere on the Internet. Single click on any highlighted phrase to follow the link.
http://www.ncsa.uiuc.edu/SDG/Software/Mosaic/SampleLink.html


WAIS, Inc.
URL: http://www.wais.com/
welcome to
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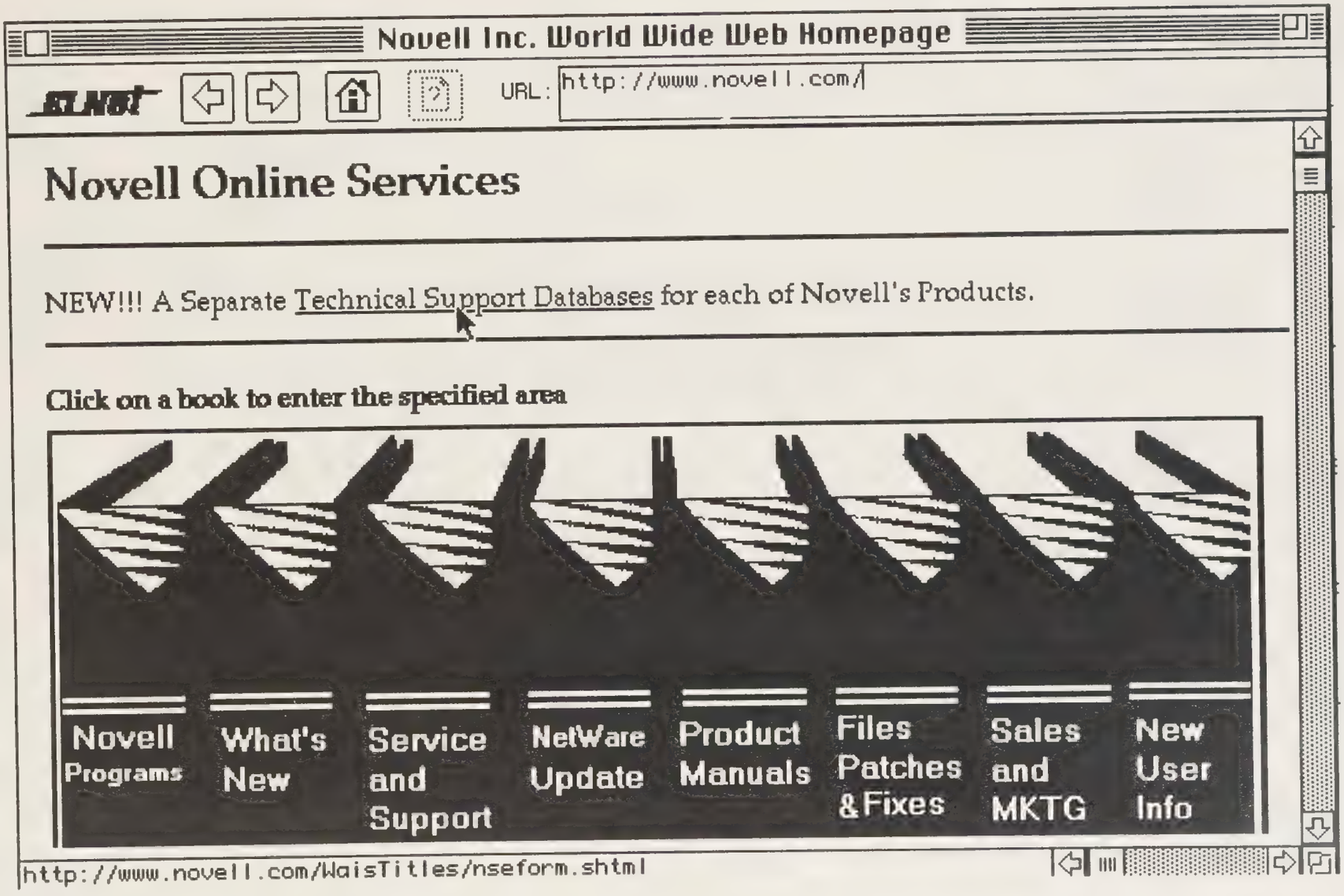
• For an evaluation trial of the commercial WAIS product, send mail to info@wais.com.
• Information about WAIS, Inc
• Access to WAISgate (WEB/WAIS interface).
• Choose from a database in the Directory of Servers
• Learn more about WAIS-related Standards
• Access to our public ftp site
• Access to our public gopher site
http://www.wais.com/waisgate-announce.html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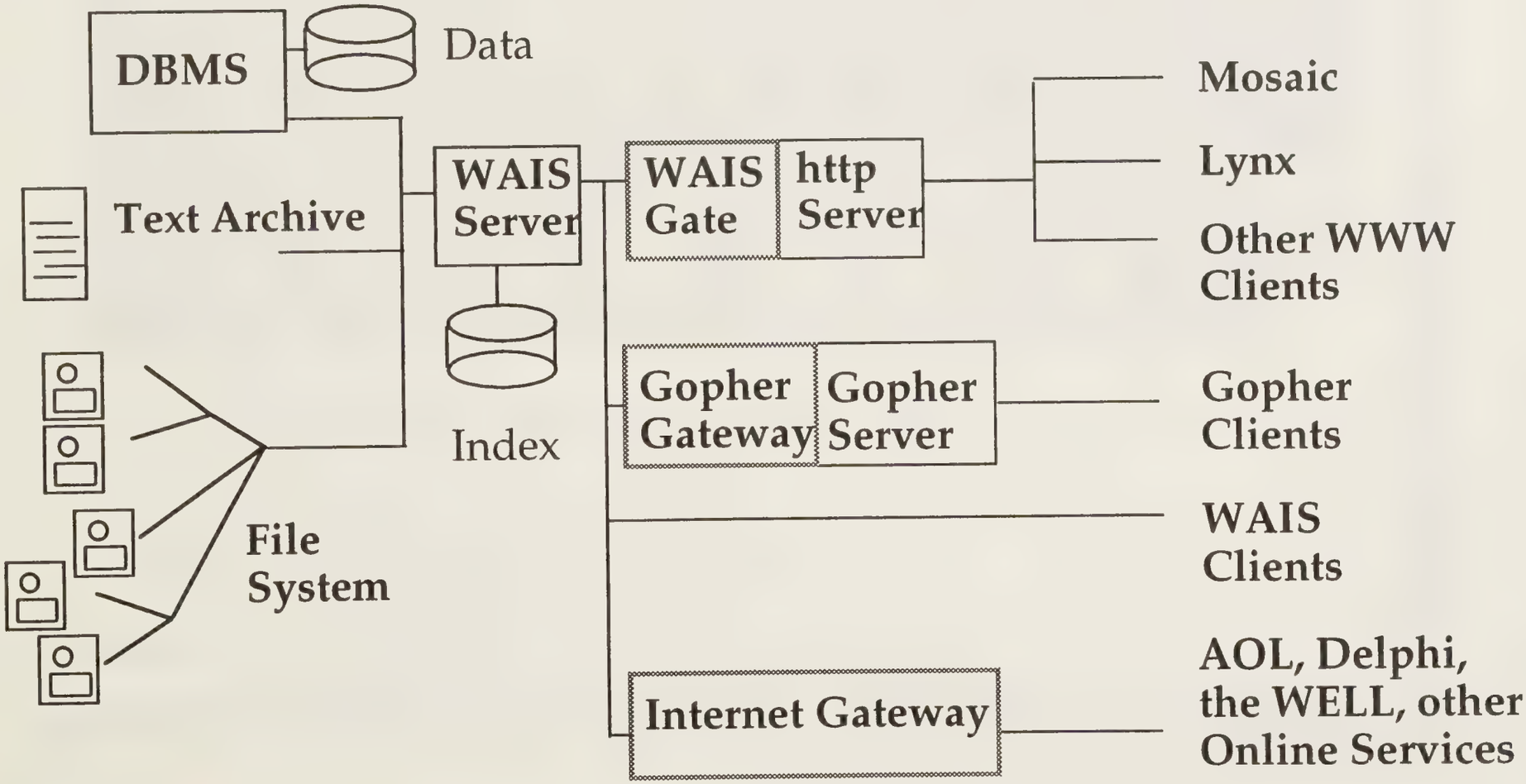
http://www.novell.com/WaisTitles/nseform.shtml

Network publishing architecture



Break

Network publishing alternatives

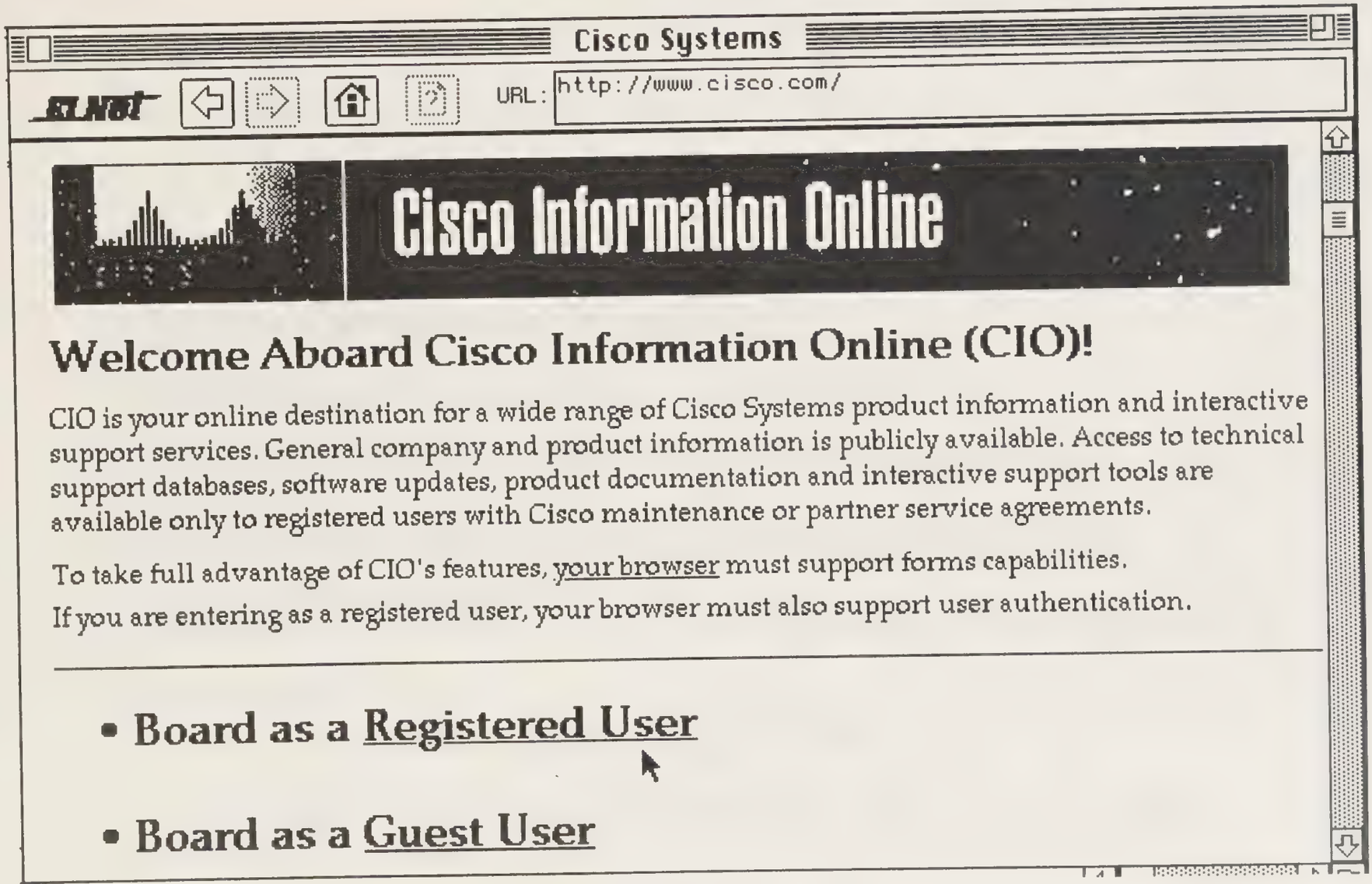
- How to think about your online service
- Cost of building the service
  - In house or through a production service
- Critical stages in the live of the service

A value proposition

- The value of your service is NOT:
  - The network's bandwidth and reach
  - Screaming hardware
  - Seductively simple software
  - Your cherished "content"
- The value of your service is much less tangible: it is derived from each user's EXPERIENCE of using it, day in and day out.

Look before you leap

- Don't expect your presence will add one user to the Internet
  - Examine the intersection of your target market with those already on the net
- Don't "just" do what you already do in print
  - Consider what you can do with the existing tools to enhance your brand's value
- Don't expect anything else to change
  - Books, magazines, catalogs, etc. will be around for a LONG time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NCSA Mosaic
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Welcome Aboard Cisco Information Online (CIO)!
CIO is your online destination for a wide range of Cisco Systems product information and interactive support services. General company and product information is publicly available. Access to technical support databases, software updates, product documentation and interactive support tools are available only to registered users with Cisco maintenance or partner service agreements.
To take full advantage of CIO's features, your browser must support forms capabilities.
If you are entering as a registered user, your browser must also support user authentication.
• Board as a Registered User
• Board as a Guest User

The Internet as publishing backbone

- Shared resource with distributed management
- No need to distribute custom front ends
- Availability of standard protocols and publishing tools
- Gateways to many markets
  - LANs throughout the world
  - Traditional online services (AOL, Delphi, the WELL)
  - Future networks such as cable and wireless

Preparing for an Internet service

- T1 (1.5mbit/sec) access
  - 56kb/sec is half price, 1/24the the performance
- Hardware and software
  - Unix for now
- Personnel

T1 installation and stabilization

- 2-3 months (requires DNS registration)
- Purchase 2 routers: $10k
- Lease a Telco line: $2k per year
- Yearly service charge: $12k

Hardware and software

- Sparc10-class machine with plenty of RAM: $15k
- 4 gigabytes of disk space: $4k
- Server software and publishing tools: $15k

Personnel required

- Network administration
  - 7-by-24 operation, facilities management
- Content coordination
  - Managing information flows
  - Access and usage management
- Development resources
  - From html to C and perl, with a flair

Building a commercial service

- Strategic analysis
- Prototyping and service design
- Producing the service
- Operating and maintaining the service

Strategic analysis

- Define objectives for the service
- Determine feasibility and costs of adding services
- Understand competing services and market dynamics

Prototyping the service

- Help new users discover and understand the value of the service
- Provide shortcuts for experienced users to get what they want
- Let regular users track their areas of interest

Producing the service

- Feed handling and database preparation
- Templates for database access
- User interfaces for marketing, customer service, help and online training systems
- Access restrictions and sign up processes
- Reporting and usage statistics

Operating and maintaining the service

- Process for content updates, changes and deletions
- Systems for capturing and processing subscription or purchase requests
- Maintaining access control information
- Reporting system usage
- Secure facilities with adequate bandwidth, processing power, and backup capabilities

Make or Buy

- Build your own service
  - $58k plus personnel costs, 1st year
  - $20k plus personnel per year thereafter
- Outsource
  - Prototype and produce the service: $50-100k
  - Maintain and operate the service: $30k per year and up

Design for change

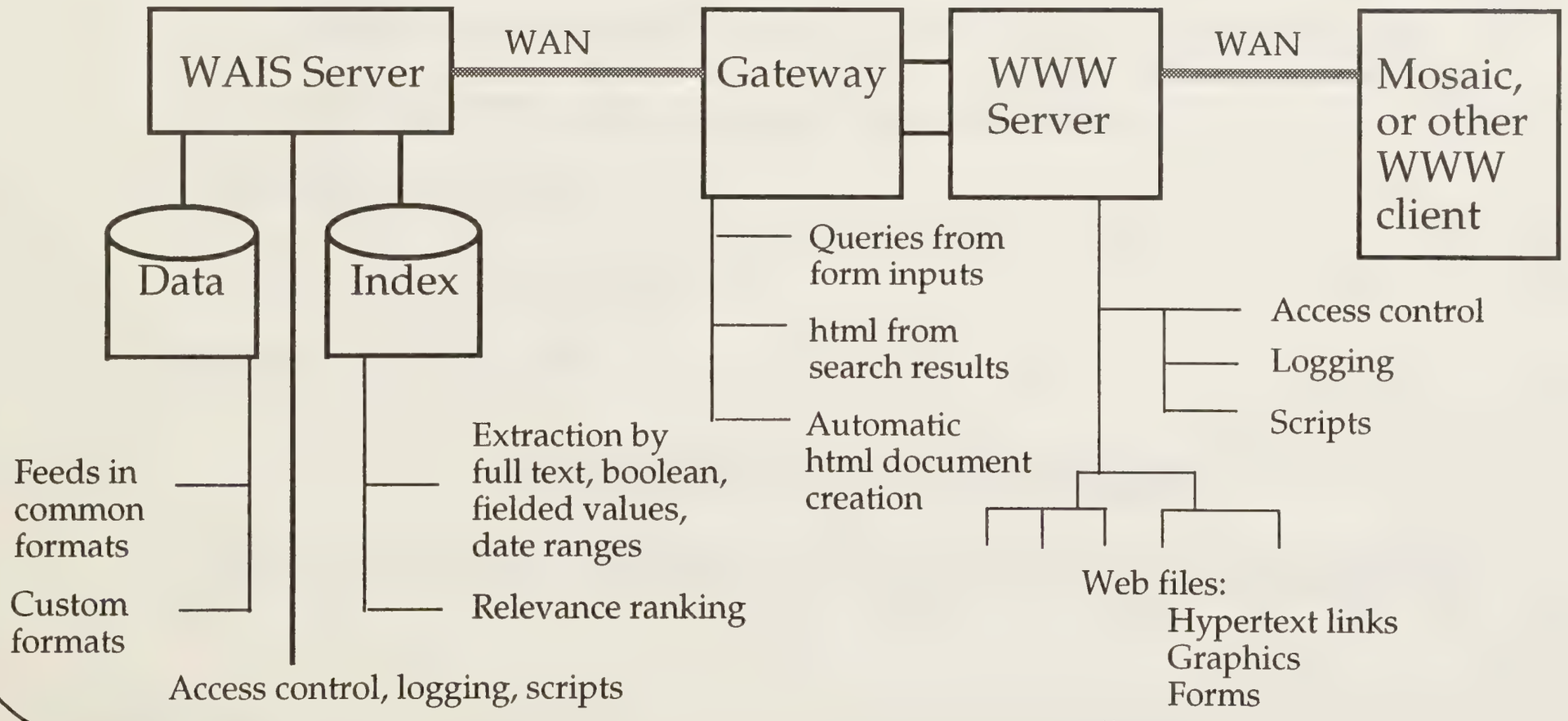
- Service facilities can migrate
  - At your offices of at a service bureau
  - Bring up multiple sites for load balancing
  - Distribute servers to major customer sites
- Markets can change
  - Gateways will evolve to serve new markets
- New service opportunities can appear
  - Open platform allows premium services, linkages to other capatible services

Break

Technical description of Internet service operations

- Feed handling
- Parsers and indexing
- Search server
- Integration with WWW distribution
  - Automatic creation of hypertext documents
  - Multiple servers behind single distribution point
- Restricting access and billing

System elements



Feeding the system

- Parsers match format of information streams
  - Standard formats include full text and fields
    - » Email archives
    - » Netnews
  - Custom parsers match database formats
  - Links to associated binary files (graphics)
- Prepare indexer
- Indexing creates pointers to document database
  - Fields, headlines, associated graphics, etc.

Search server characteristics

- Finds most "relevant" documents from a database
  - User supplies words, boolean or fieled search requests
  - Responds to agent-originated queries
- Sends headline as defined by indexer
- Standard protocol allows searching multiple databases with a single query

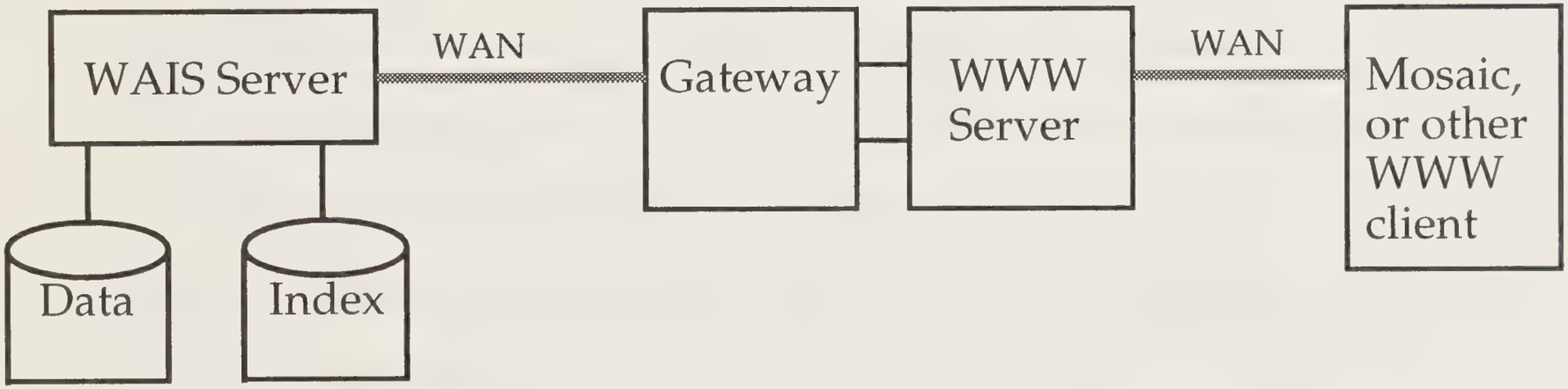
WWW integration

- Common Gateway Interface
  - Access to WAIS, SQL, and other data sources
- WAISgate turns the WWW server into a flexible, intelligent WAIS client
  - Build html entry points into the database
  - Intelligent handling of forms and results

Access restrictions

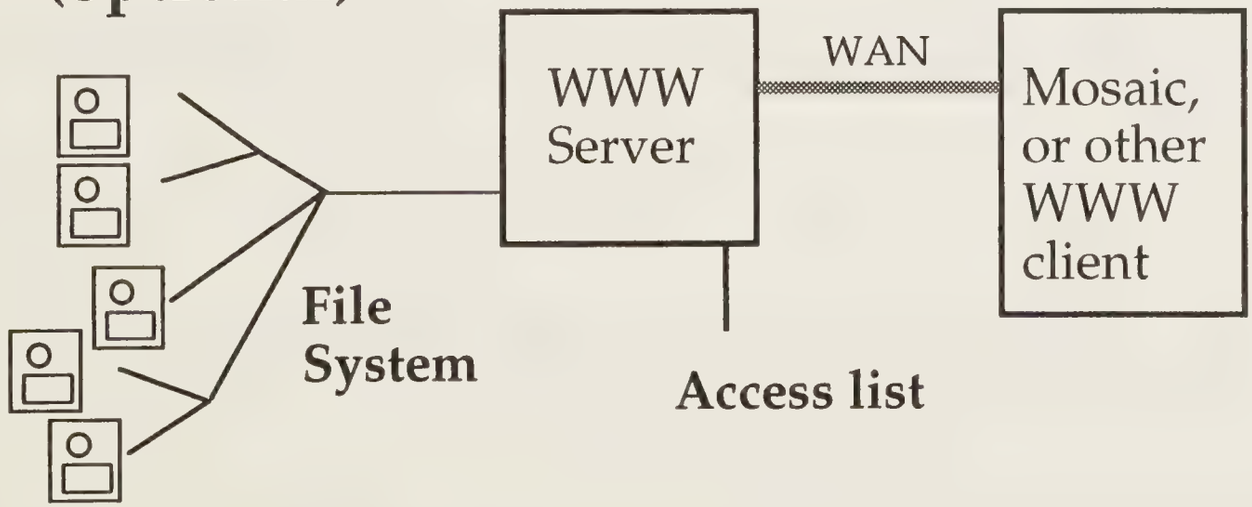
- At both the WWW server and WAIS server
  - Any request can be filtered
    - » Send a sign up form
    - » Ask for password
  - Authorizations based on machine access
    - » Future direction is based on public key encryption
- Billing system ties into access matrix

The service in operation



Stage 1: URL request

- **WWW client requests an html page**
- **WWW server retrieves document and send it**
  - **Checks access list, requires password (optional)**



Stage 2: Forms as front ends to databases

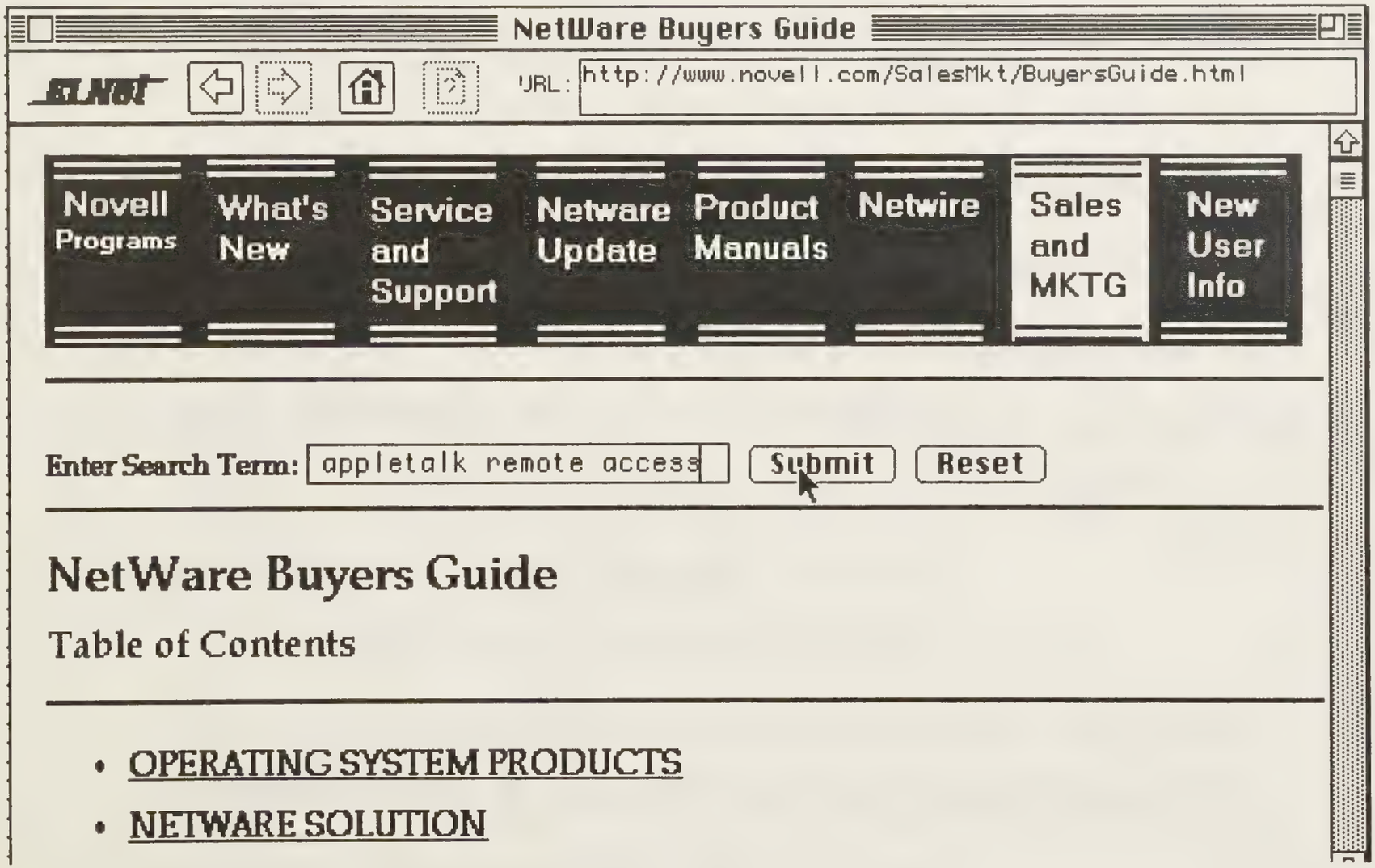
- WWW user fills in form
- WWW server sends information to Common Gateway Interface
  - CGI hands off messages to WAISgate
- WAISgate repackages contents into a WAIS query
  - Identifies WAIS source(s)
  - Packages natural language with boolean and fielded restrictors

Stage 3: WAIS Results

- WAIS server finds most relevant documents
  - Based on word frequency, rarity, proximity, and location within document
  - Sends WAIS results back to WAISgate
- WAISgate creates html document
  - Assembles and orders headlines
  - Packages results with navigation and help information
- New html document sent to user

Stage 4: Document retrieval

- User chooses a document
  - URL passed to WWW server
- WWW server passes URL request to WAISgate
- WAISgate issues a WAIS retrieval request
- WAIS server retrieves document
  - WAISgate packages the document in html
    - » Bolds hit terms, scrolls to first hit, etc.
    - » Creates hypertext links
      - Based on field values
      - Passes along those in the document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Service and Support
Netware Update
Product Manuals
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Reset
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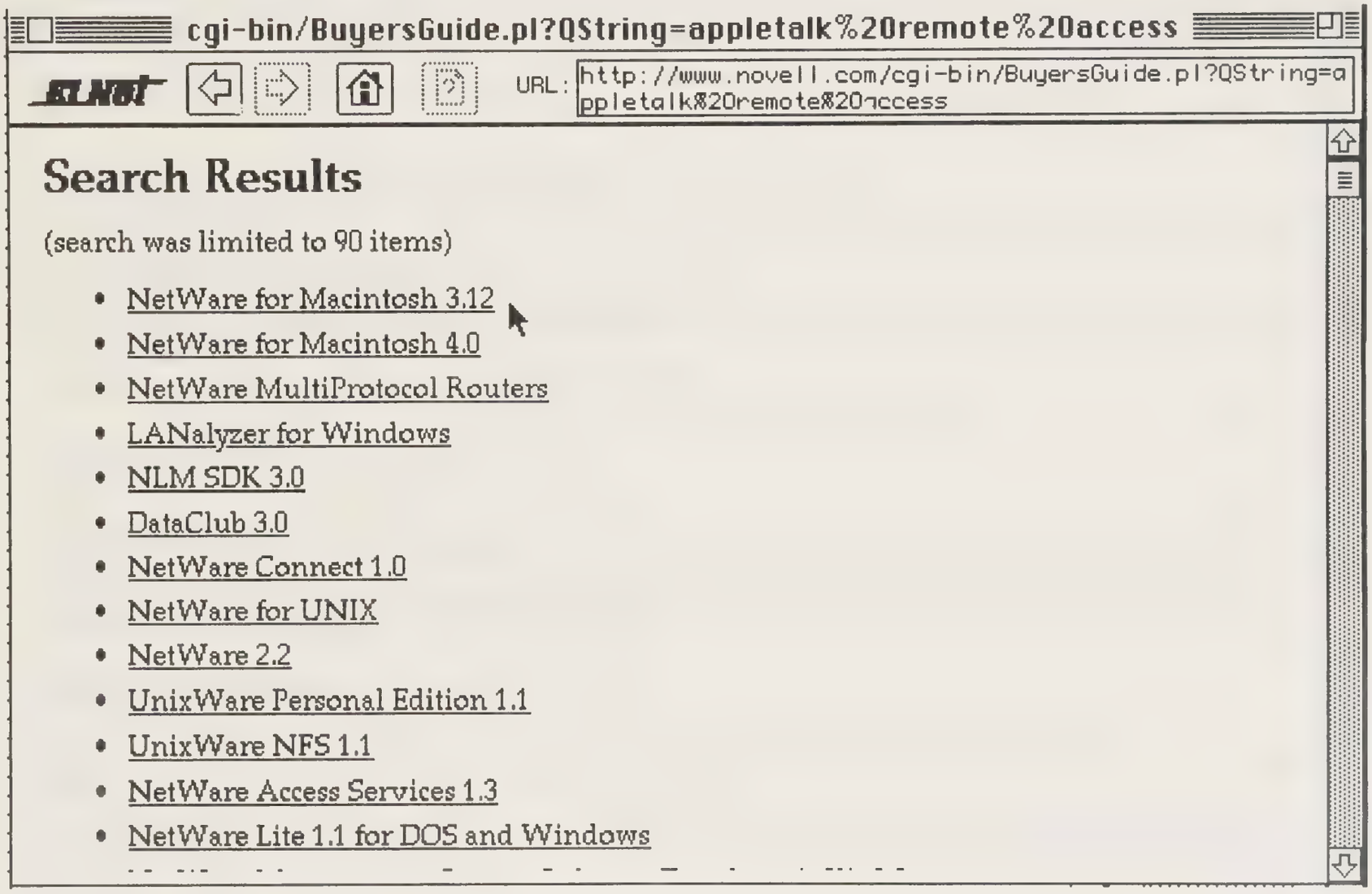
OPERATING SYSTEM PRODUCTS
NETWARE SOLUTION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Search Results
(search was limited to 90 items)
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NetWare for Macintosh 4.0
NetWare MultiProtocol Routers
LANalyzer for Windows
NLM SDK 3.0
DataClub 3.0
NetWare Connect 1.0
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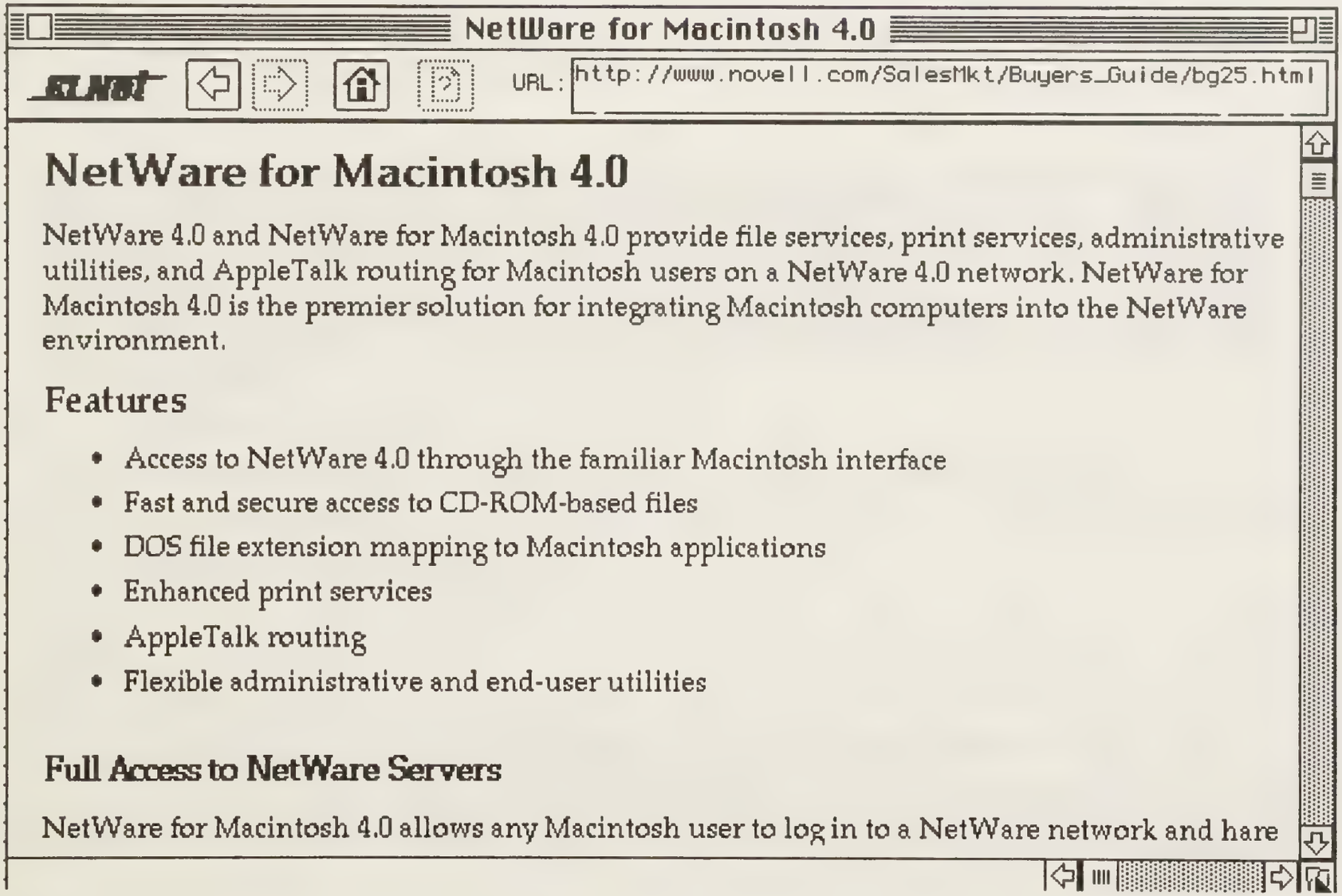
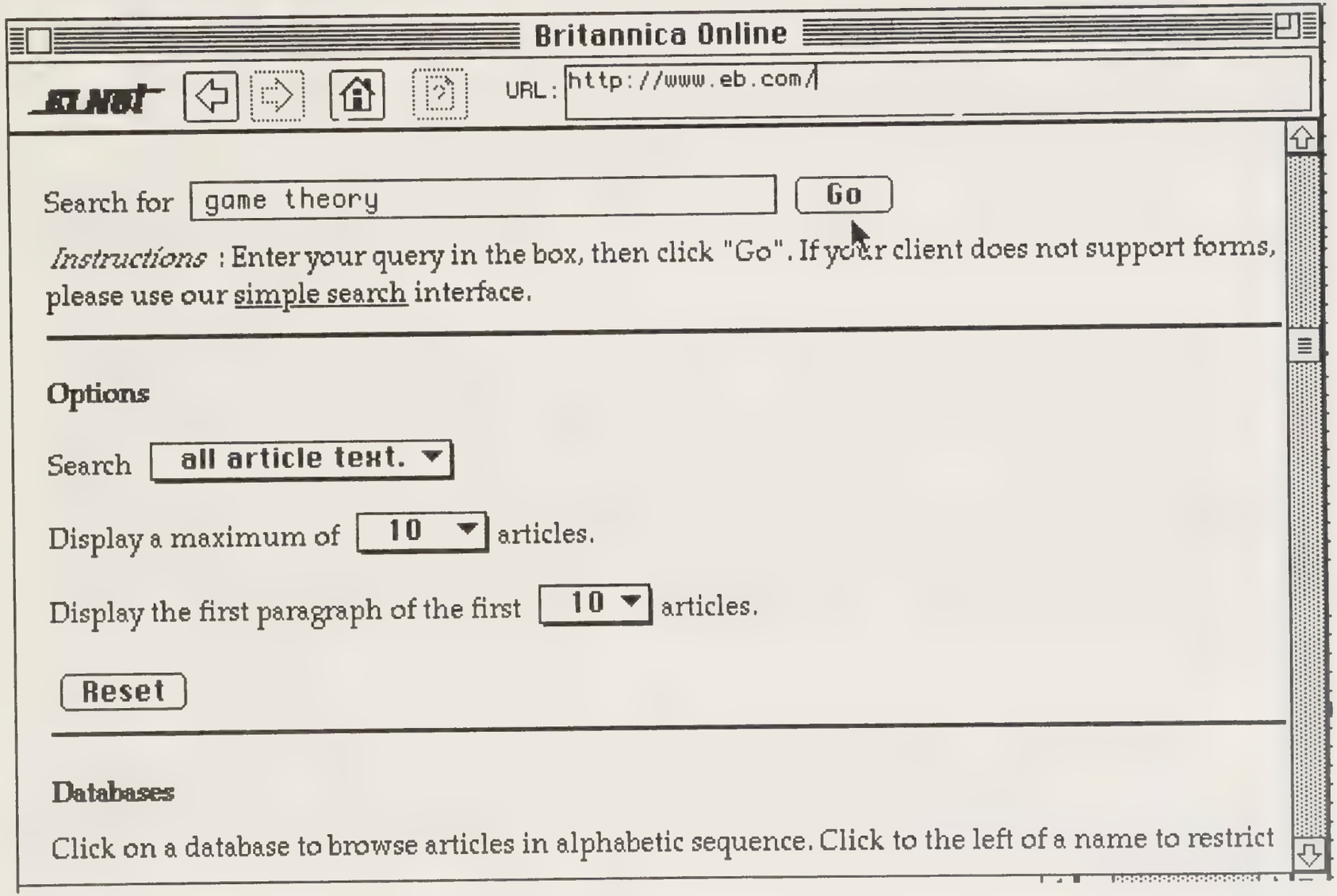
NetWare Lite 1.1 for DOS and Windows


NetWare for Macintosh 4.0
URL:
http://www.novell.com/SalesMkt/Buyers_Guide/bg25.html
NetWare for Macintosh 4.0
NetWare 4.0 and NetWare for Macintosh 4.0 provide file services, print services, administrative utilities, and AppleTalk routing for Macintosh users on a NetWare 4.0 network. NetWare for Macintosh 4.0 is the premier solution for integrating Macintosh computers into the NetWare environment.
Features
• Access to NetWare 4.0 through the familiar Macintosh interface
• Fast and secure access to CD-ROM-based files
• DOS file extension mapping to Macintosh applications
• Enhanced print services
• AppleTalk routing
• Flexible administrative and end-user utilities
Full Access to NetWare Servers
NetWare for Macintosh 4.0 allows any Macintosh user to log in to a NetWare network and hare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Search for game theory
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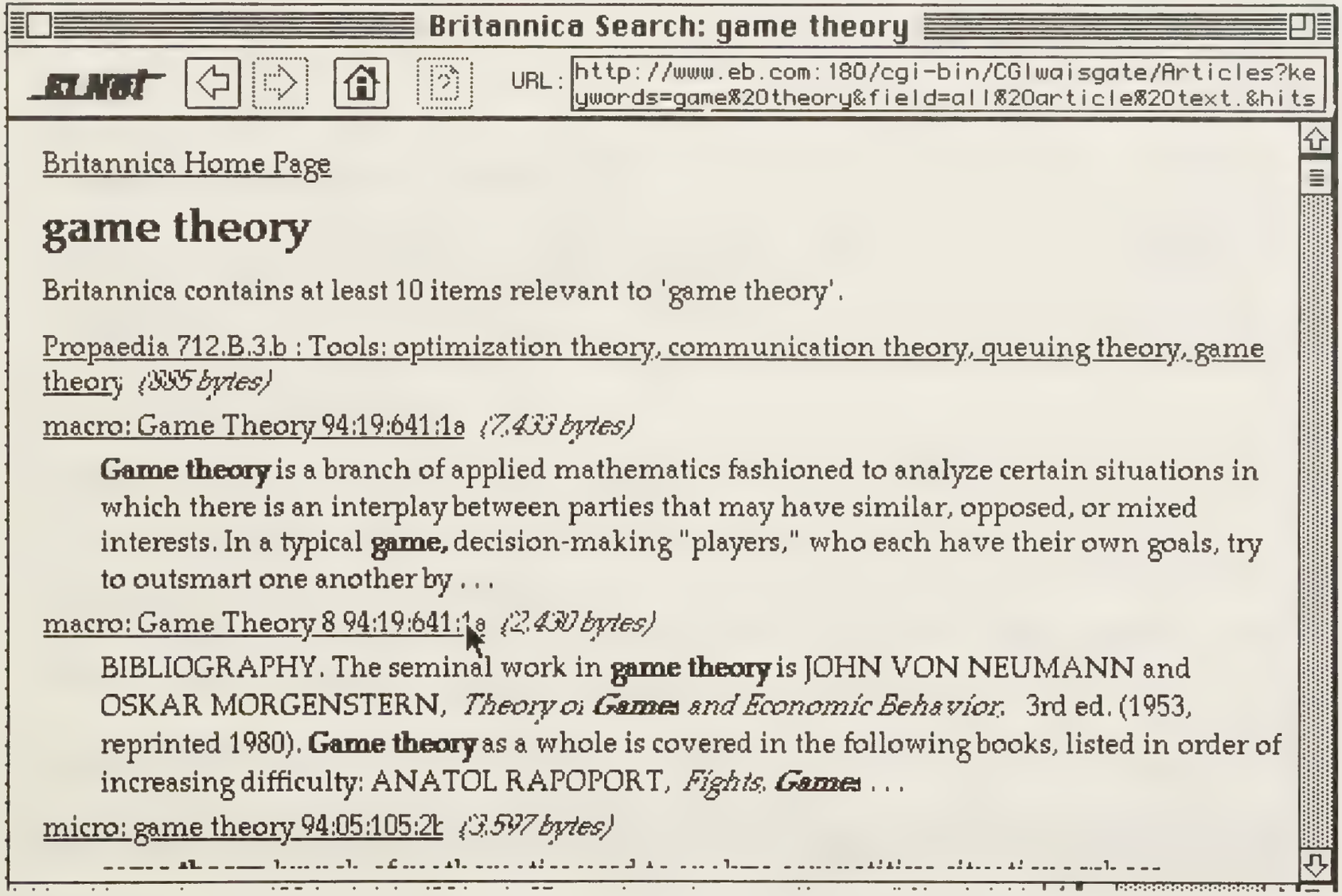
Options
Search all article text.
Display a maximum of 10 articles.
Display the first paragraph of the first 10 articles.
Reset
Databases
Click on a database to browse articles in alphabetic sequence. Click to the left of a name to restrict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game theory
Britannica contains at least 10 items relevant to 'game theory'.
Propaedia 712.B.3.b : Tools: optimization theory, communication theory, queuing theory, game theory (3555 bytes)
macro: Game Theory 94:19:641:1a (7,433 bytes)
Game theory is a branch of applied mathematics fashioned to analyze certain situations in which there is an interplay between parties that may have similar, opposed, or mixed interests. In a typical game, decision-making "players," who each have their own goals, try to outsmart one another by . . .
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BIBLIOGRAPHY. The seminal work in game theory is JOHN VON NEUMANN and OSKAR MORGENSTERN, Theory of Games and Economic Behavior, 3rd ed. (1953, reprinted 1980). Game theory as a whole is covered in the following books, listed in order of increasing difficulty: ANATOL RAPOPORT, Fights, Games . . .
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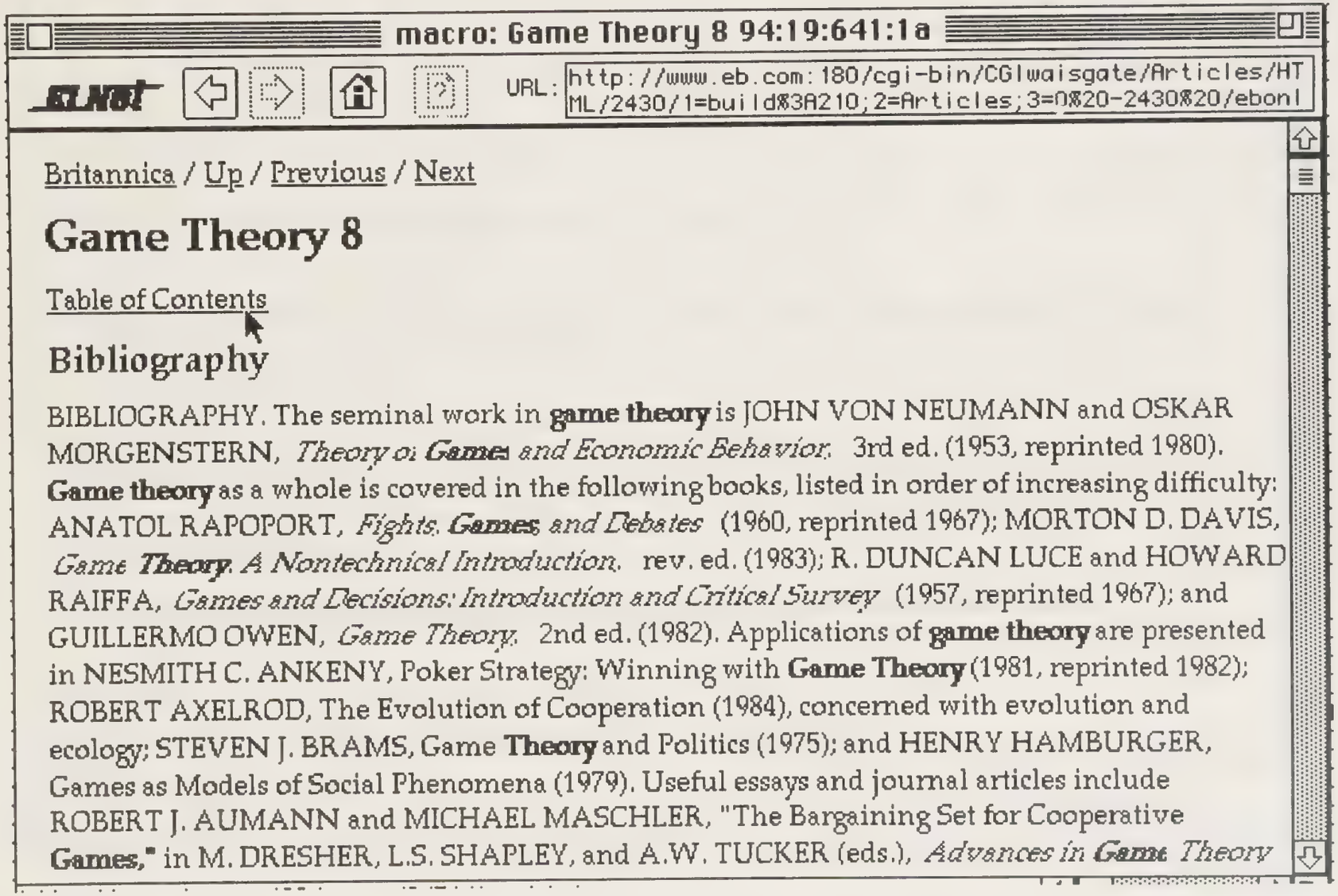
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Game Theory 8
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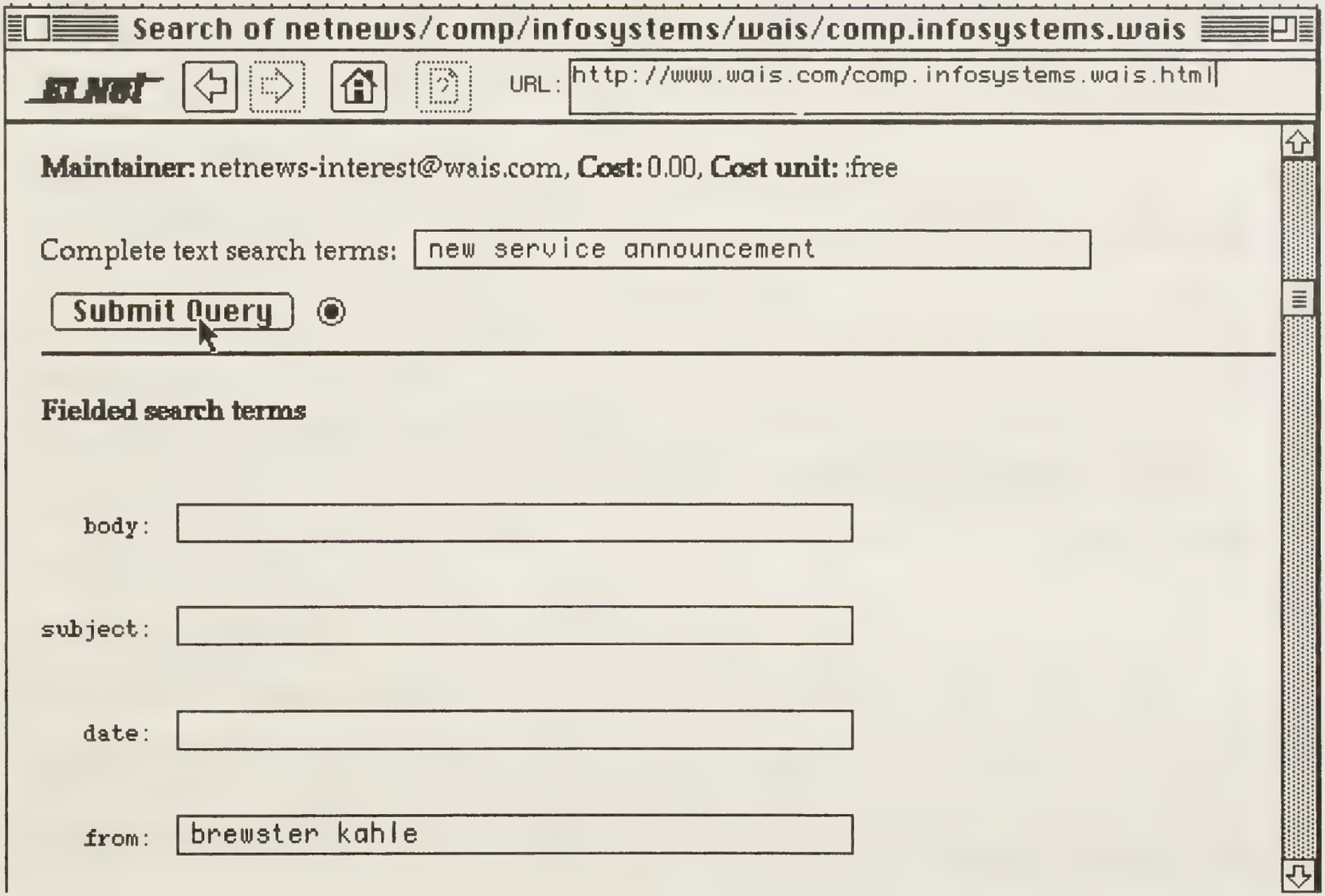
Bibliography
BIBLIOGRAPHY. The seminal work in game theory is JOHN VON NEUMANN and OSKAR MORGENSTERN, Theory of Games and Economic Behavior, 3rd ed. (1953, reprinted 1980). Game theory as a whole is covered in the following books, listed in order of increasing difficulty: ANATOL RAPOPORT, Fights, Games, and Debates (1960, reprinted 1967); MORTON D. DAVIS, Game Theory: A Nontechnical Introduction, rev. ed. (1983); R. DUNCAN LUCE and HOWARD RAIFFA, Games and Decisions: Introduction and Critical Survey (1957, reprinted 1967); and GUILLERMO OWEN, Game Theory, 2nd ed. (1982). Applications of game theory are presented in NESMITH C. ANKENY, Poker Strategy: Winning with Game Theory (1981, reprinted 1982); ROBERT AXELROD, The Evolution of Cooperation (1984), concerned with evolution and ecology; STEVEN J. BRAMS, Game Theory and Politics (1975); and HENRY HAMBURGER, Games as Models of Social Phenomena (1979). Useful essays and journal articles include ROBERT J. AUMANN and MICHAEL MASCHLER, "The Bargaining Set for Cooperative Games," in M. DRESHER, L.S. SHAPLEY, and A.W. TUCKER (eds.), Advances in Game Theory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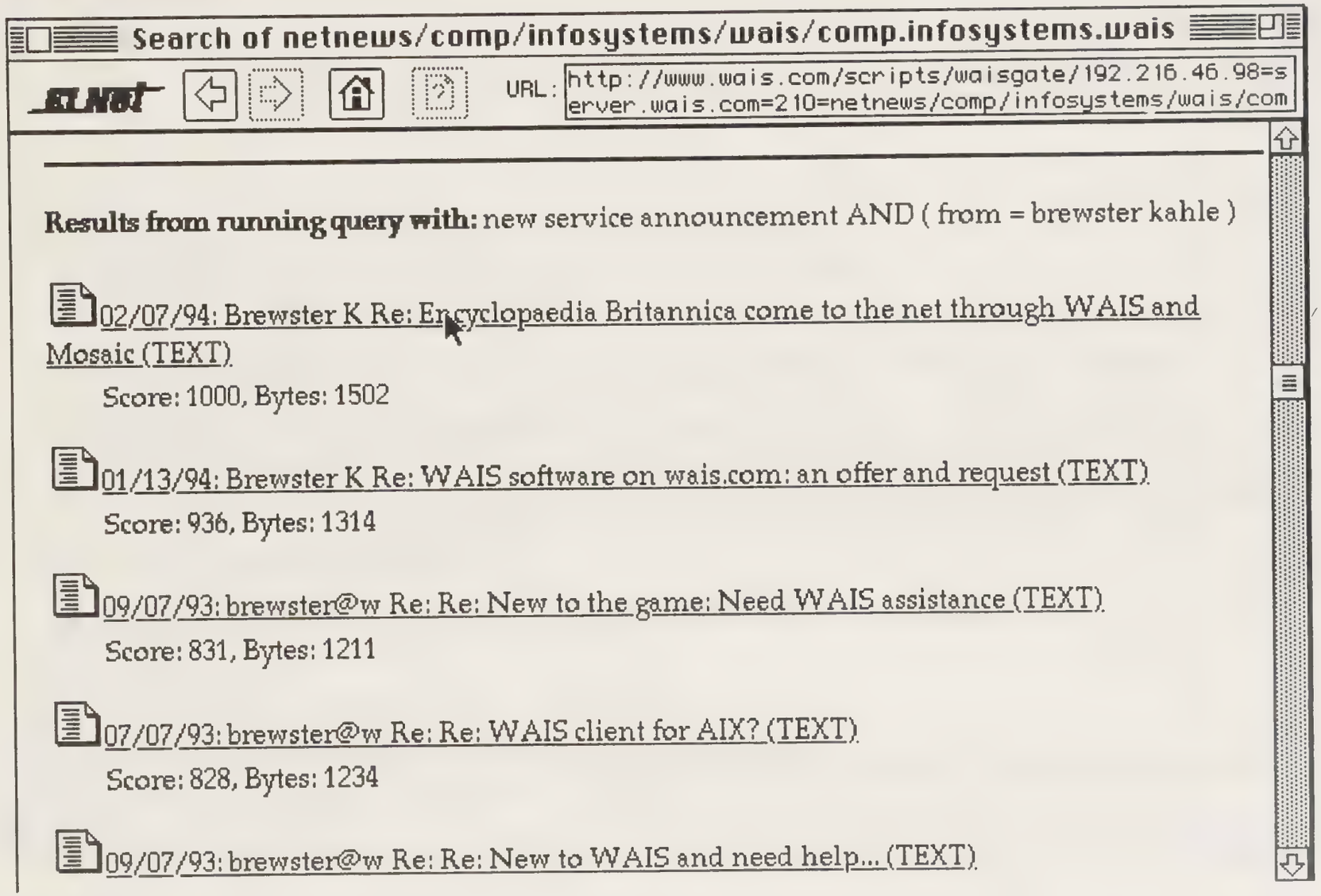
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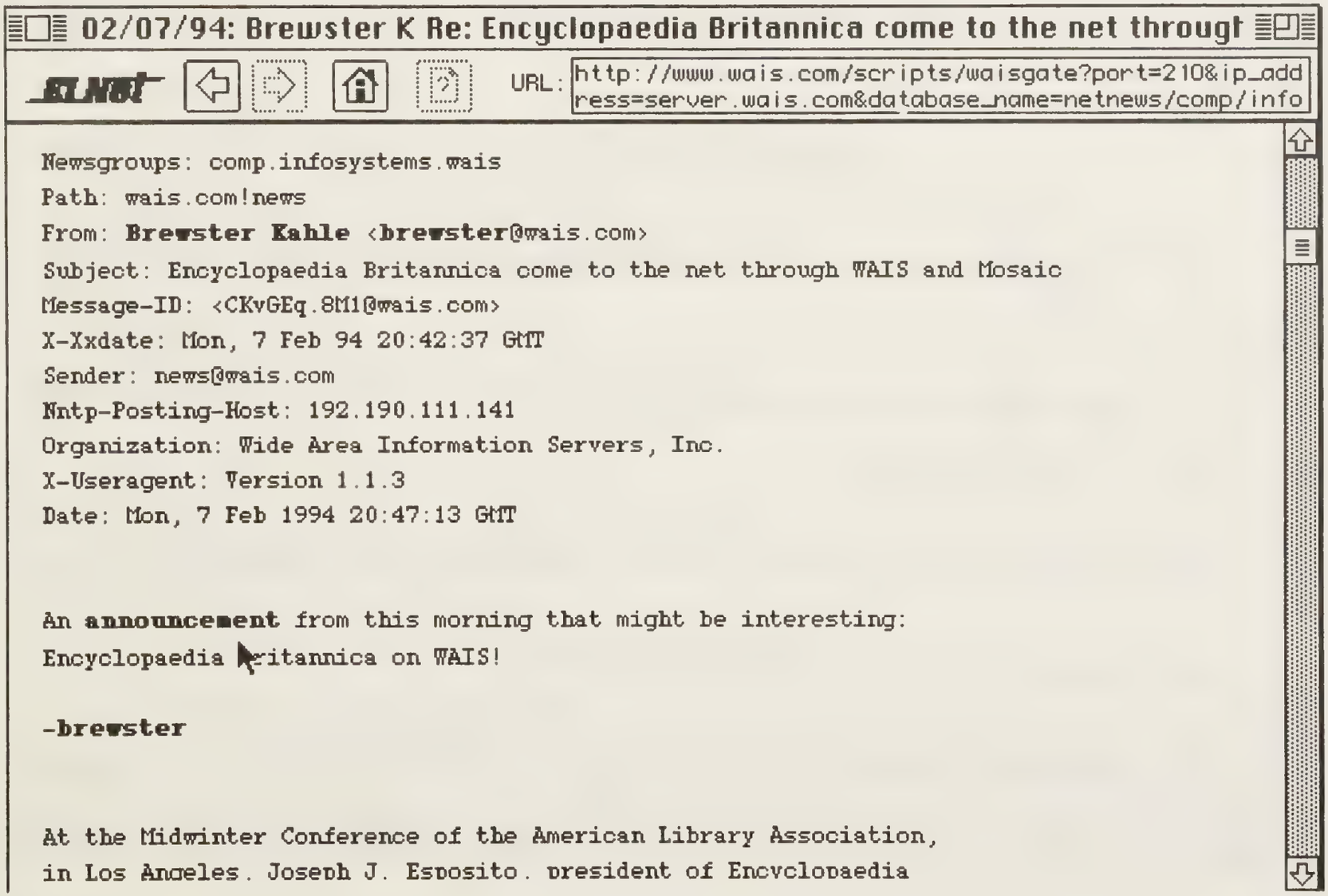
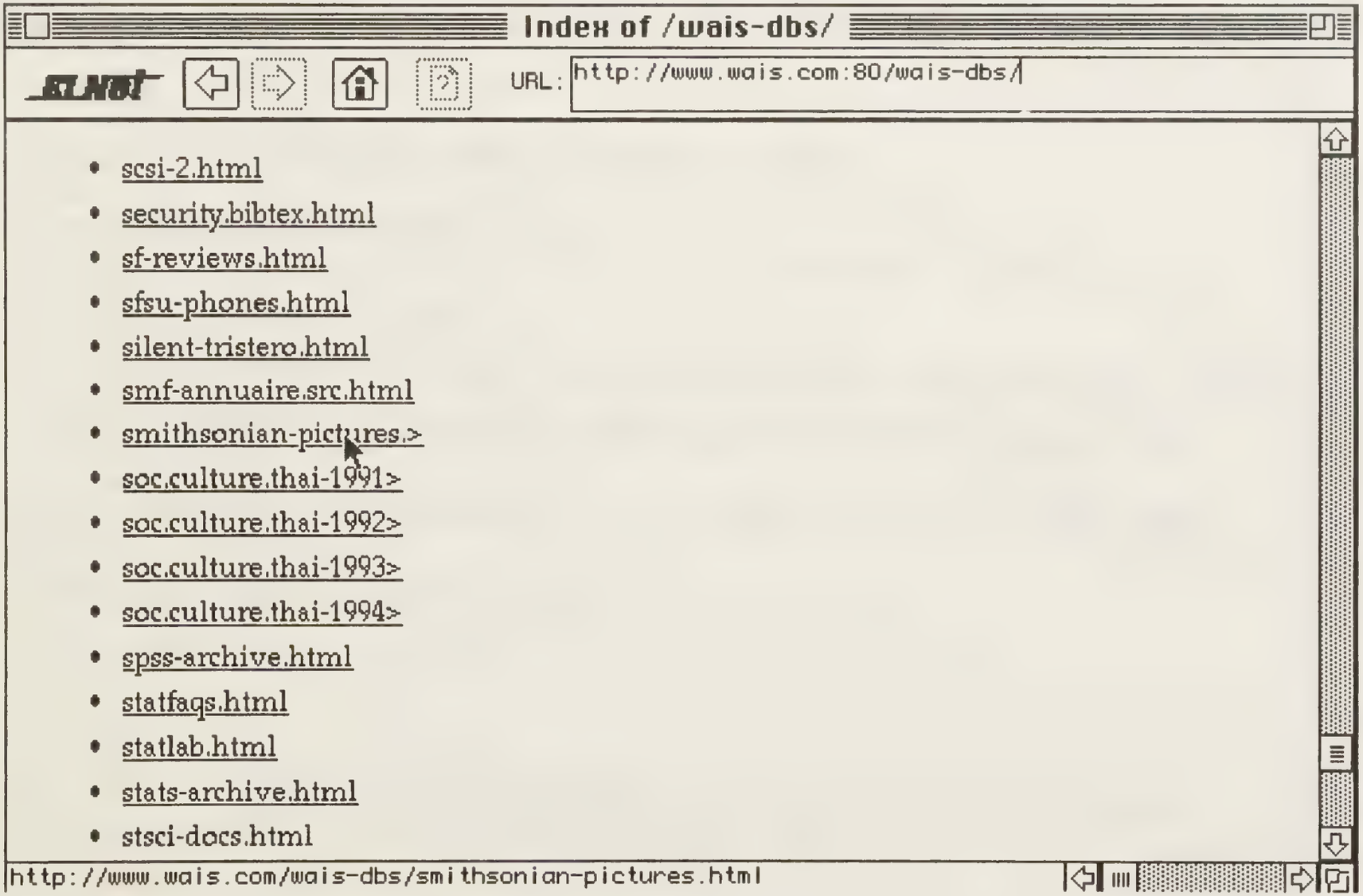
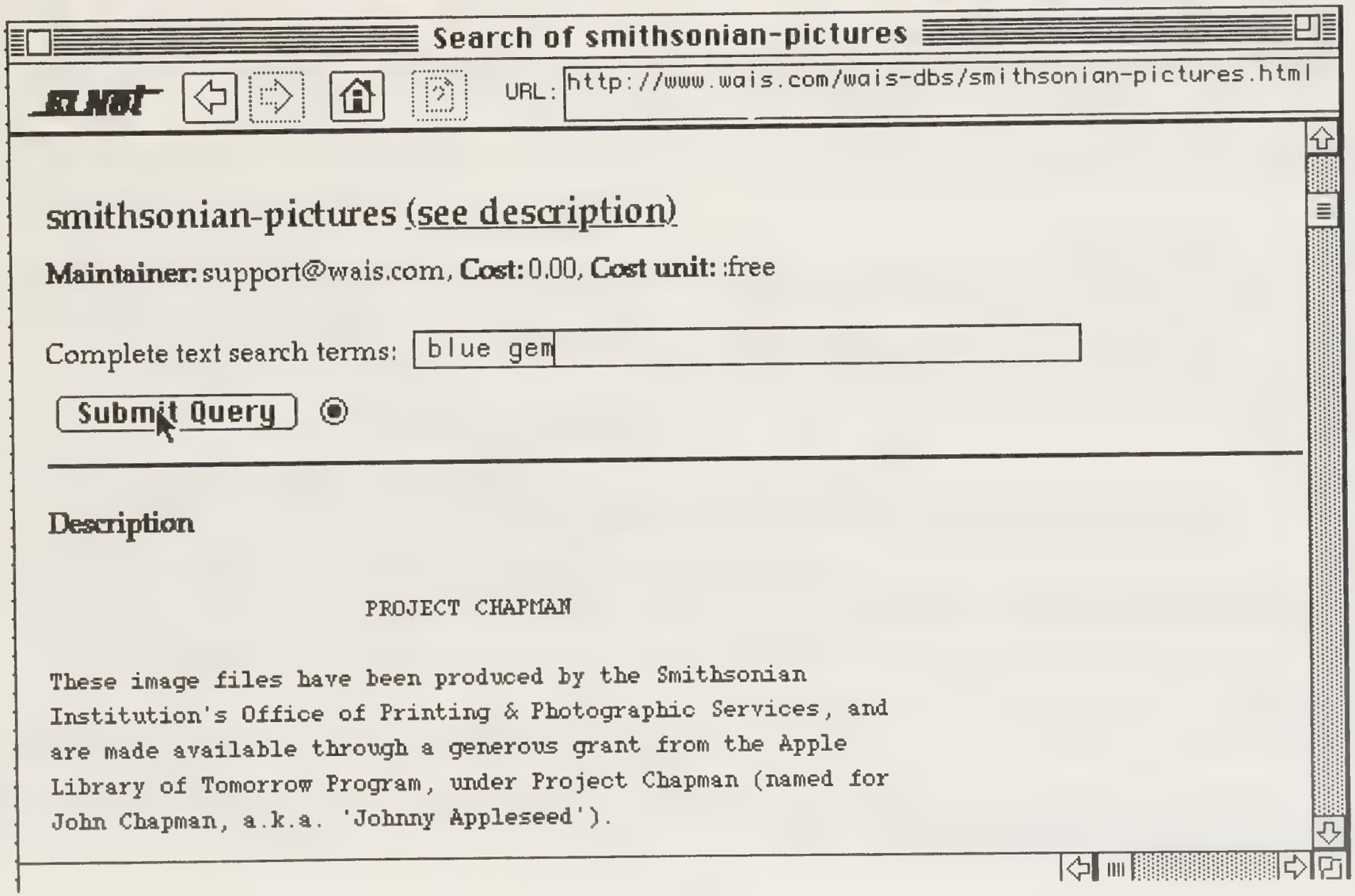
09/07/93: brewster@w Re: Re: New to the game: Need WAIS assistance (TEXT)
Score: 831, Bytes: 1211
07/07/93: brewster@w Re: Re: WAIS client for AIX? (TEXT)
Score: 828, Bytes: 1234
09/07/93: brewster@w Re: Re: New to WAIS and need help... (TEXT)

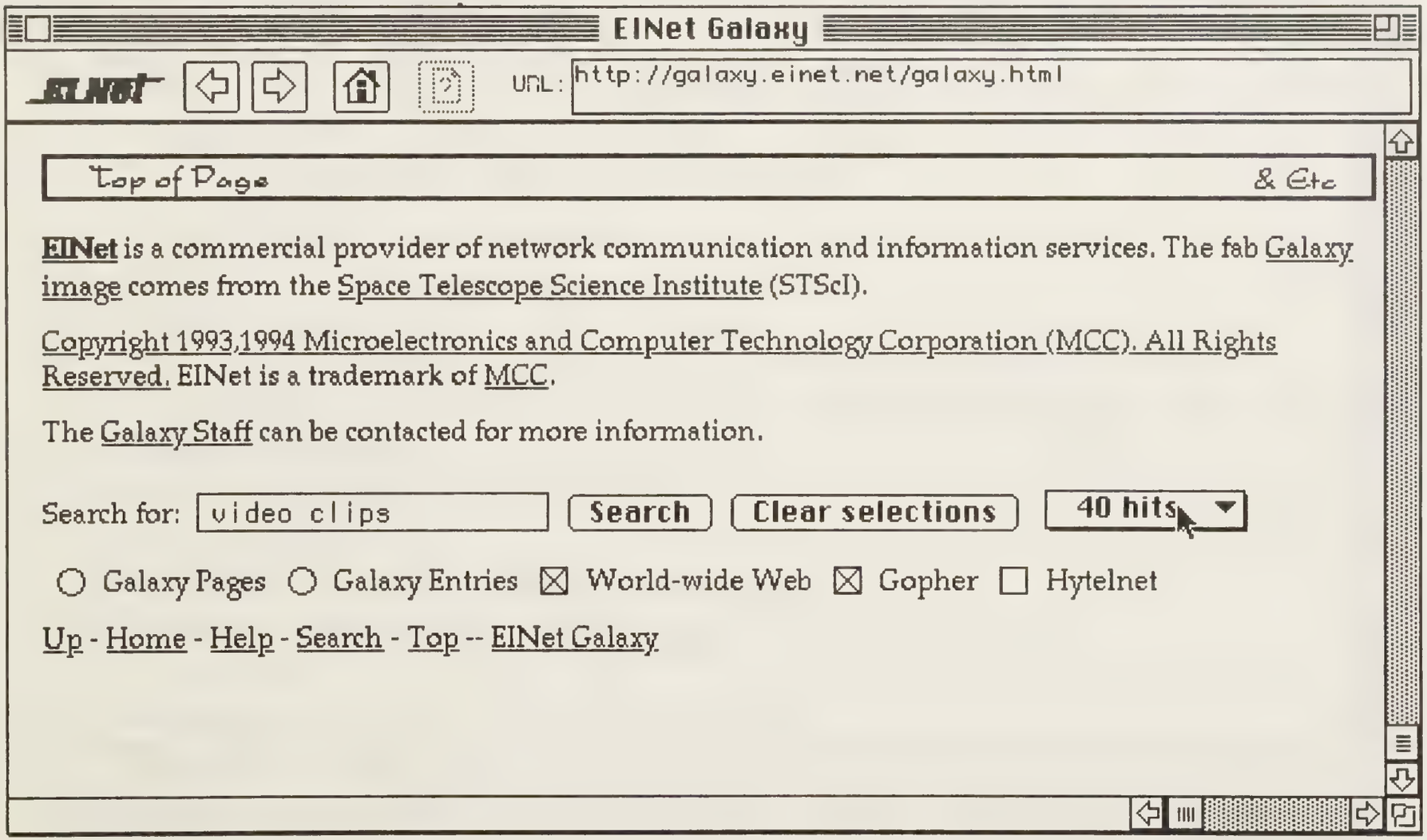

02/07/94: Brewster K Re: Encyclopaedia Britannica come to the net through
NCSA Mosaic
URL: http://www.wais.com/scripts/waisgate?port=210&ip_address=server.wais.com&database_name=netnews/comp/info
Newsgroups: comp.infosystems.wais
Path: wais.com!news
From: Brewster Kahle <brewster@wais.com>
Subject: Encyclopaedia Britannica come to the net through WAIS and Mosaic
Message-ID: <CKvGEq.8M1@wais.com>
X-Xxdate: Mon, 7 Feb 94 20:42:37 GMT
Sender: news@wais.com
Nntp-Posting-Host: 192.190.111.141
Organization: Wide Area Information Servers, Inc.
X-Useragent: Version 1.1.3
Date: Mon, 7 Feb 1994 20:47:13 GMT
An announcement from this morning that might be interesting:
Encyclopaedia Britannica on WAIS!
-brewster
At the Midwinter Conference of the American Library Association,
in Los Angeles, Joseph J. Esposito, president of Encyclopaedia

Special directory services

- Directory of servers
  - Step 1: Search on database descriptions
  - Step 2: Search target database, based on source location information contained in the description
- Web walkers
  - Search across WWW pages
    - » EInet Galaxy
  - Search results contain URLs to WWW servers


Index of /wais-dbs/
URL:
http://www.wais.com:80/wais-dbs/
scsi-2.html
security.bibtex.html
sf-reviews.html
sfsu-phones.html
silent-tristero.html
smf-annuaire.src.html
smithsonian-pictures.>
soc.culture.thai-1991>
soc.culture.thai-1992>
soc.culture.thai-1993>
soc.culture.thai-1994>
spss-archive.html
statfaqs.html
statlab.html
stats-archive.html
stsci-docs.html
http://www.wais.com/wais-dbs/smithsonian-pictures.html


Search of smithsonian-pictures
URL:
http://www.wais.com/wais-dbs/smithsonian-pictures.html
smithsonian-pictures (see description)
Maintainer: support@wais.com, Cost: 0.00, Cost unit: :free
Complete text search terms:
blue gem
Submit Query
Description
PROJECT CHAPMAN
These image files have been produced by the Smithsonian Institution's Office of Printing & Photographic Services, and are made available through a generous grant from the Apple Library of Tomorrow Program, under Project Chapman (named for John Chapman, a.k.a. 'Johnny Appleseed').


EINet Galaxy
URL: http://galaxy.einet.net/galaxy.html
Top of Page
& Etc
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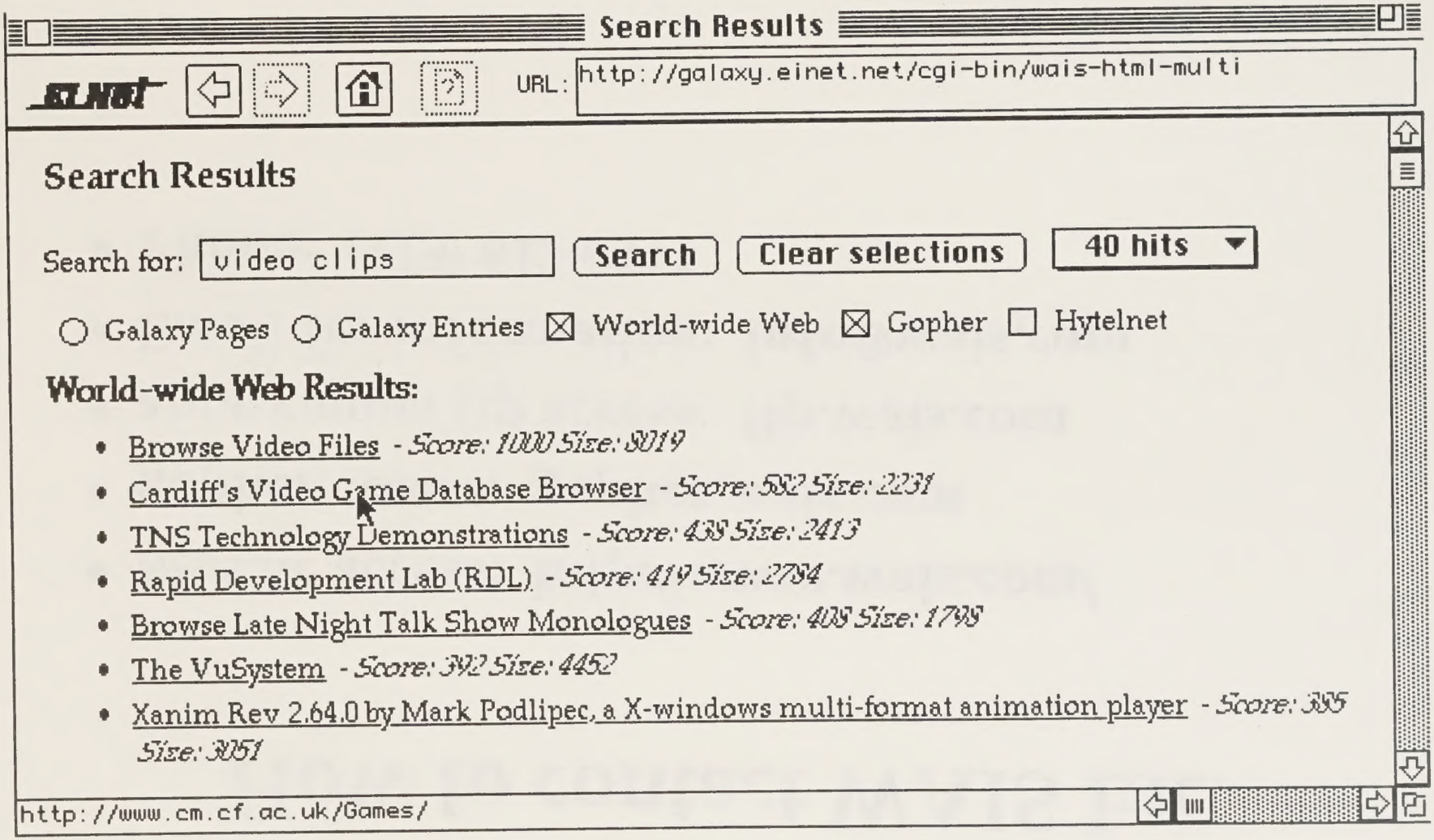
The Galaxy Staff can be contacted for more information.
Search for: video clips
Search
Clear selections
40 hits
Galaxy Pages
Galaxy Entries
World-wide Web
Gopher
Hytelnet
Up - Home - Help - Search - Top -- EINet Galaxy


Search Results
URL: http://galaxy.einet.net/cgi-bin/wais-html-multi
Search Results
Search for: video clips
Search
Clear selections
40 hits
Galaxy Pages
Galaxy Entries
World-wide Web
Gopher
Hytelnet
World-wide Web Results:
Browse Video Files - Score: 1000 Size: 3019
Cardiff's Video Game Database Browser - Score: 502 Size: 2231
TNS Technology Demonstrations - Score: 439 Size: 2413
Rapid Development Lab (RDL) - Score: 419 Size: 2794
Browse Late Night Talk Show Monologues - Score: 409 Size: 1795
The VuSystem - Score: 392 Size: 4452
Xanim Rev 2.64.0 by Mark Podlipec, a X-windows multi-format animation player - Score: 385 Size: 3051
http://www.cm.cf.ac.uk/Games/

How to contact WAIS Inc.

- **Mosaic access: http://www.wais.com/**
- **gopher access: gopher.wais.com**
- **anonymous ftp access: ftp.wais.com**
- **Email for information: info@wais.com**
- **Phone: (415) 617-0444**